

# GREEN BUSINESS GAZETTE

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## SPECIAL ISSUE ON WATER



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# WELCOME

*...to the 17th Issue of the Green Business Gazette.*

**GREETINGS** to our worthwhile readers. We are back again with another issue. This time we delve into the Special Issue on Water. The development of the world will never be complete without water. In order to support human life, water is inevitable. We assess uses of water, water pollution and also water efficiency tips.

The issue also encourages the practice of rainwater harvesting and remembers the spiritual uses of water in different cultures. Our agriculture thrives on water in order to attain effective fields. Touted by many, to become the next currency, water is now a key facilitator of trade and economic development. We welcome suggestions and experiences in the field of water and how water is transforming people’s lives. Let’s continue to promote water savings within our household and businesses.

The rising conflict around water also shows that water will become a major security issue in developing countries as more people battle to control the asset. Even if it is used, water can also be recycled in order to save costs and also present the organisation with cost savings. Let’s continue to save water wherever we are!!

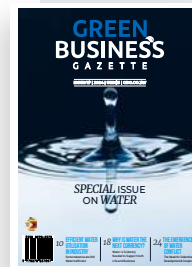
**Tawanda Collins Muzamwese**  
EDITOR-IN-CHIEF

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## ON THE COVER

↓  
The Special Issue on Water Featuring a Water Treatment Factory

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*This is a special issue on water*



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There is an increasing corresponding burden on the availability of water.



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A Key To Development

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# WATER SCARCITY IN THE AGE OF CLIMATE CHANGE

*Climate change is one of the biggest challenges affecting humanity today. There is an increasing corresponding burden on the availability of water. This is due to reduced rainfall in many parts of the world.*

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The propounding effects of climate change have resulted in livestock calamity, unbalanced nutrition for both humans and livestock.

The availability of water is an essential step in the process of the hydrological cycle. In rural communities, water availability is also linked to the ability to grow crops for household food security.

In urban areas, the need for water continues to grow as a result of the growing urban population. Due to the high density spread of urban dwellers in some places such as favelas and high density areas, the lack of water may result in disease and pandemics.



# EFFICIENT WATER UTILISATION IN INDUSTRY – A KEY TO DEVELOPMENT

*Industrial development is the backbone of the economy in many developing and transition countries. However, some industries are still water inefficient, despite the availability of vast amounts of information on water efficiency. There are many strategies that can be implemented to deal with the issues of efficient water utilisation at the level of the industry.*

Recycling of wastewater as already been practiced since antiquity. This can reduce water bills and reduce the risk of financial squeeze.

In many companies there is a high number of leaks and spillages within the production processes. Simple measure like replacing valves can be used to reduce water loss and spillages.

Saving water is a key enabler for attaining sustainable development in both developing and transition countries.

Many organisations do not know the amount of water which they consume or which suits their requirements. Therefore, it is essential to promote water metering including sectional metering.





# RAINWATER HARVESTING

## – A NEW NORMAL

*Precipitation yields significant opportunities for water availability within the home. There are many opportunities for harnessing and collecting it when the rain cometh.*

In many places worldwide, there could be a phase of rain and also another phase that is dry. Therefore, it is necessary to harness the period when there is plenty of rainfall. Many families lose a lot of water due to runoff, but then struggle during the year to access water

Many proven uses of rainwater harvested include irrigation, laundry and in a number of cases treating the water for drinking purposes.

The net effect of rainwater harvesting is the attainment of water independence and reduced dependence on the water utility. In addition, there is a reduced cost of water to a household or an organisation.

# WATER SUPPORTS LIVELIHOODS

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# ADVANCED WATER TREATMENT TECHNOLOGIES

*The world is fast advancing in the world of water treatment. New technologies are emerging in field of advanced water treatment. In particular, the emergence of membrane filtration technologies and reverse osmosis have captured many.*

Many institutions in research, manufacturing and development are into full production or membrane technologies. Preparing modules that are used for filtration at very high pressures, is a passion for many people who have mastered the art.

Membrane filtration can screen the smallest of particles out of the water, such that it heads to purity. Some micro-organisms are captured by membrane technologies.

The membrane technologies also need maintenance, in order to ensure that they are free from fouling and scaling. Due to usage, salt build-up is a reality that needs to be properly dealt with.



# WATER ANALYSIS AND TESTING – KEY TO HEALTH

*Thousands of people are settling in new residential areas and in the process are drilling boreholes to cater for their water needs.*

However, very few are going on to assess the parameters in the water that they plan to drink. The need for testing physical, chemical and biological properties is a no brainer. Water can be affected by bacteria, which can then be transmitted to humans upon drinking. Micro-organisms have to be analysed and tested, so that they can be eliminated before entering the food chain.

There are also chemical properties that have to be tested, in order to ensure that their elimination of chemical risk such as that posed by hazardous chemicals. Mineral content of water can also indicate the mineralogy of the underlying rock and soil formations.

On the physical front, parameters such as colour turbidity and temperature are essential.



You never know what is in water until a test is done on the water. Results of water tests can inform us on the best decision with regards to water treatment. Let's avoid drinking water from untested sources.



# CONSERVATION AGRICULTURE KEY TO WATER SAVING

*Many farmers have been shocked by the scourge of climate change. As a result, they are reforming the way we do agriculture.*

Conservation agriculture consists of a set of measures meant to reduce water intensity and save water in agriculture.

Mulching is one of the methods of retaining moisture and ensuring that there is limited water loss through evaporation.

Maintaining permanent soil cover has also proven to provide shading to the soil and ensure that water loss is limited to the minimum.

Other soil conservation technologies include fanya-juus, contour ridges, infiltration pits and increasing organic matter feed.

In this unprecedented age of climate change, there is a critical to save every drop of water.



# WHY IS WATER THE NEXT CURRENCY?

*Although the means of trade will remain etched in money for many years to come, it is increasingly becoming evident that water is now becoming a currency of its own. In order to do business, water is needed and in order to support life, it is inevitable to have water. Agro-processing companies which are in industrial processing of sugarcane can never thrive without water. The whole agricultural sector including perennial exporters need water to irrigate their crops.*

In industrial processes, water is needed for bottling and beverages production in the case of both alcoholic and non-alcoholic beverages. For some companies, water is an essential raw material that is needed to input into products and also needed to be a key process enabler.

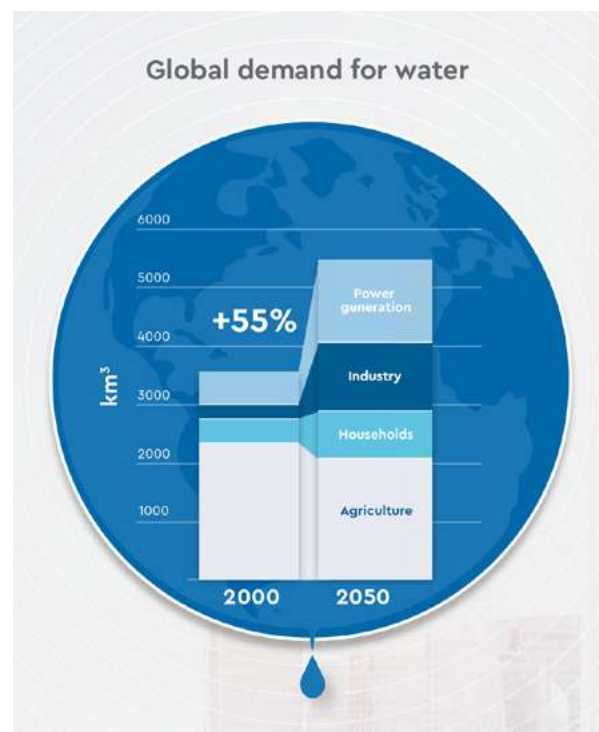
Livestock production depends on water, as animals need to replenish their aquatic desires with water. Running a livestock business without water is a nullity.

For the dare-devils, sports such as tiger-fish sport and white-water rafting depend on water. It is impossible to undertake canoeing, if water does not exist. Countries that have water, are able to have thriving manufacturing industries, access process inputs, generate energy and create value from water usage.

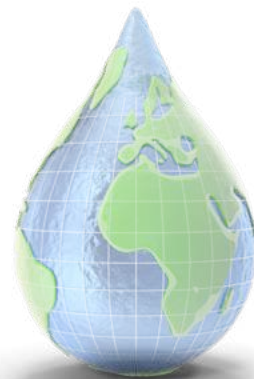
A few privileged countries have harbours where they can receive materials and foster trade.



These activities will pave way for macro-economic development and earning foreign currency, especially as we are already in the age of climate change. Countries cannot trade their geographic location, but can trade goods and services. Those with more water access will have an edge on the global market.



**EVERY DROP  
OF WATER IS  
PRECIOUS –  
700 MILLION  
LIVES DO NOT  
HAVE ACCESS  
TO WATER**



# BOTTLED WATER COMPANIES SPROUT- ALWAYS CHECK CERTIFICATION



*There are a number of bottled water companies that have flourished in Zimbabwe in recent years. Some are operating with proper licenses, whilst some are not. The certification body, Standards Association of Zimbabwe, periodically published list of certified companies that supply mineral water for drinking purposes.*

*Customers have to start taking critical notice on certification of water products and ensure that they exert consumer pressure on those firms that ignore certification and good water quality.*



# MORE ORGANISATIONS SELLING BOTTLED WATER GET CERTIFIED



*More organisations with bottled water on the Zimbabwean market are getting certified. The most popular certification body has been the Standards Association of Zimbabwe. This process enables stakeholders to have greater confidence in the quality of water which they drink.*

Many bottling organisations have emerged on the local market to augment water needs due to the challenges faced by local authorities. So bulk water and bottled water have been viable alternatives. However proper scientific results and analysis of the bottled water is necessary in order to give good guarantees of the cleanliness of the water.

The pressure from consumers are also making it difficult to sell water which has not been treated, tested analysed and certified. It is greatly encouraged for anyone dealing with bottled water to do things above board and ensure that water is tested and certified as fit for human consumption.



# BEHAVIOURAL CHANGE KEY TO WATER CONSERVATION

*The attainment of water use efficiency, is dependent on the behaviour of human beings.*



*Wasteful behaviour is detrimental to the success of water efficient programmes. Many people leave taps running or run them whilst doing activities such as brushing teeth. In companies, some workers leave hose pipes running for the whole night.*

*Overfilling tanks and failure to replace valves and washers are some of the unkempt activities increasing water footprint.*

*Failure to develop leak detection mechanisms also leaves a lot to be desired in many organisations.*

The background of the entire page is a complex, black and white marbled pattern. It features intricate, swirling, and cellular-like textures that resemble marbled paper or perhaps microscopic biological structures. The colors range from deep black to light grey, creating a high-contrast, organic feel.

# SAY NO TO WATER POLLUTION

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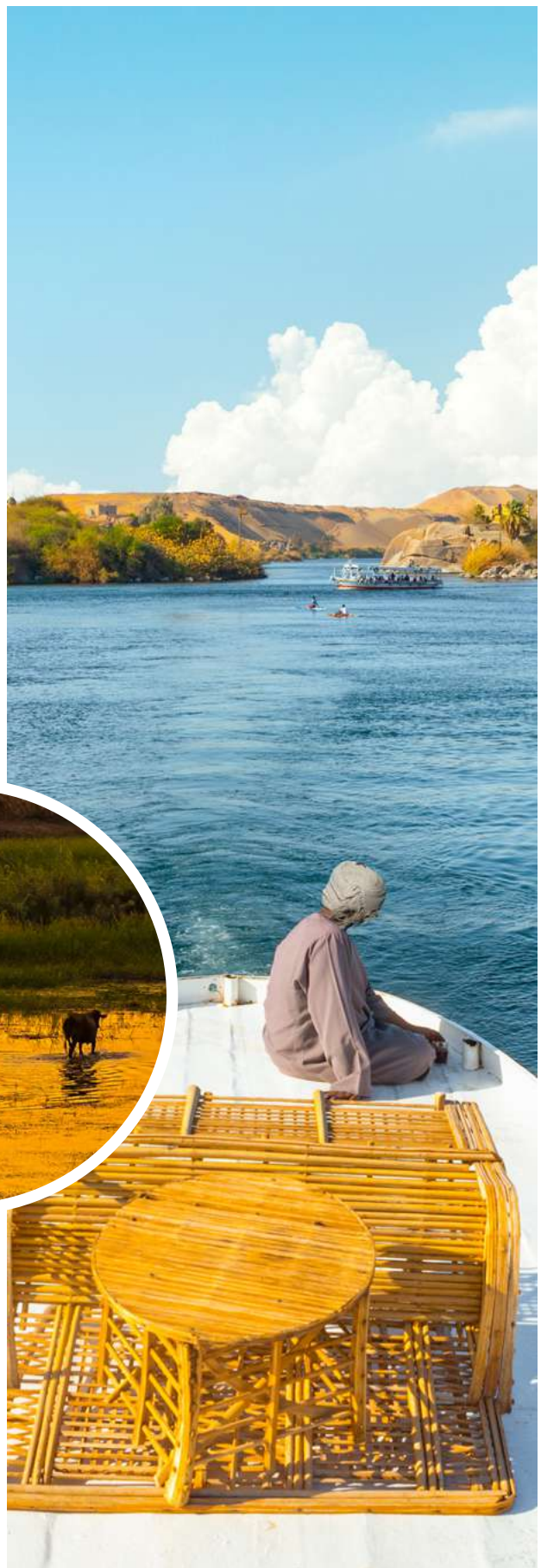
# WATER CONFLICT EMERGES AND NEED FOR CO-EXISTENCE

*Water will result in war if it is not managed in the manner that fosters collective development and cooperation. In many parts of the world water scarcity is increasing at disproportionate levels. Many countries are grappling with reality of climate change and lack of sustainable sources of water. There is need for new ways of harvesting water, recycling, reuse and efficient water utilisation.*

Some of the conflicts related to water usage, exist in irrigation schemes where people's livelihoods are greatly affected. Other cases include disagreements between different countries on the uses of water, such as conflict on the use of the Nile River. Consensus is not always easy to get from different countries as the perceptions vary from one country to the other country.

Due to the rise in pollution of water bodies, it's very common to see conflict between upstream and downstream water users with the latter accusing the former of causing significant levels of pollution in water bodies.

Some pastoral farmers fight with grazing farmers who both own livestock, but also need water for their animals. A continuation with the business as usual will result in injury, fatality and even war - when water is not effectively managed. As Sub-Saharan Africa suffers from the realities of climate change, it is increasingly getting difficult to have predictable rainfall patterns and hence the recharge of the water table is greatly affected.



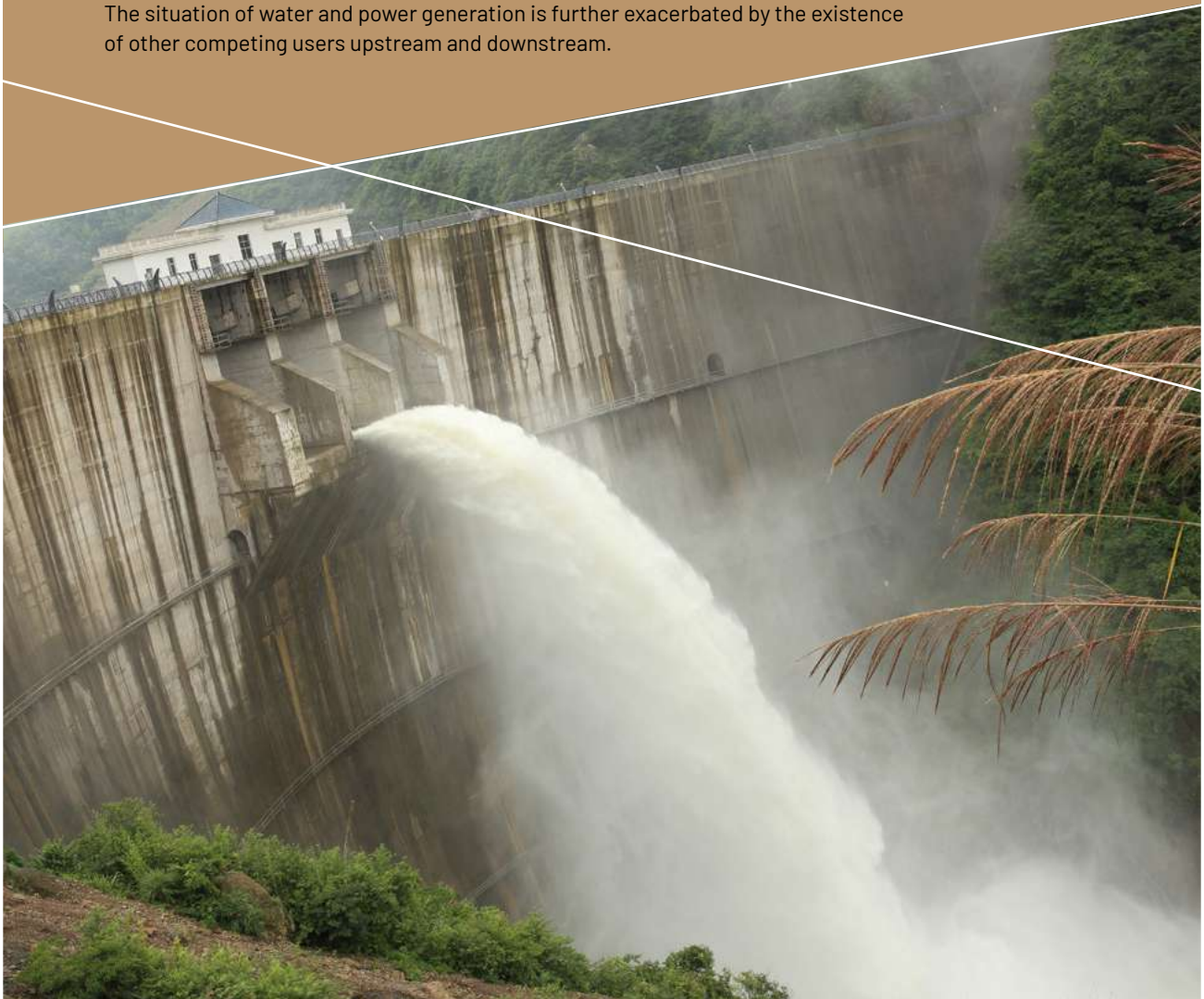
# WATER LEVELS THREATEN ENERGY SECURITY

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*Energy and water nexus exists due to the fact that water is used in hydropower generation. Hydropower is considered cleaner than coal fired power stations. In the past few decades, we have seen the reduced water levels in dams and rivers that feed into them. Consequently, the amount of energy that can be generated is also getting lower with time due to climate change.*

If precipitation keeps dwindling, we shall continue to witness a decline in the power generation capacity in many countries will be affected. There will also be consequent effects on the industrial development and livelihoods.

Understanding the water and energy nexus is therefore a key enabling aspect of managing sustainable development and to inform infrastructural development in developing and transition countries. The situation of water and power generation is further exacerbated by the existence of other competing users upstream and downstream.





# CULTURE AND SPIRITUAL DIMENSIONS OF WATER

*Water is the most precious liquid available to humanity. With its known properties of supporting food and nutrition as well as energy generation, a day is impossible without water being utilised. Industries also need water for processes. However, there is a dimension of water that is often ignored – cultural and spiritual dimension of water.*

Some religions place spiritual significance on water to the extent of believing that within water rests some powers immortal. Being at sea and at the ocean is also seen as a mechanism of harnessing tranquillity.

From ancient civilisations, water was also considered as having cleansing properties. Some religions consider water as a medium for baptism and cleansing evil spirits. Developing new ways of using water is a key tool that is needed for promoting sustainable development and at the same time respecting people's preferences on water use is key to living in harmony.

Stress is believed to be relieved when one reaches the edge sea. In other cases, water is used to cleanse the dead as they journey to the immortal lands. Whether this turns out to be effective, one can never know. In some countries, worshipping water bodies is common. In this issue, we recognise all the dimensions of water and how society perceives it.

# SAVE WATER — SAVE LIVES



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# KNOW YOUR WATER PARAMETERS

*In this issue we delve into some of the major water quality parameters that are of interest. Starting with pH, which gives an indication of acidity or alkalinity of water. It is not advisable to drink water which is acidic or alkaline as it can have various health problems or be contaminated. Good quality water should be near neutral pH. Coliforms in water also indicate microbial contamination including at times faecal contamination.*

Turbidity also is amongst key water quality parameters as it indicates the clearness of water. Highly turbid waters are not health for consumption. There is also the conductivity which shows an indication of the extent to which water conducts electricity. In its natural form it conducts electricity, but conductivity can be increased by increased salt concentration. Concentration such as Sodium, Calcium, Magnesium is also not ideal as they can accelerate salinity of soils. Calcium and Magnesium also increase water hardness. Additional water parameters include Total Dissolved Solids and Total Suspended Solids. Good quality water has less of these solids.

In recent year's people have also started considering odour of the water and preference being to water without offensive odours. There is also a key parameter called Biological Oxygen Demand which gives an indication of the organic matter load in water. Heavy metals are also assessed such as lead and mercury, which should be prevented at all costs. Heavy metals are neurotoxic, to the extent of affecting the nervous systems of developing young children.

Other heavy metals can have reproductive health effects. Water temperature is also essential in order to prevent situations such as thermal inversion.



# RECYCLE WATER

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# TO REDUCE LOSSES





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